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ABSTRACT

To assist the Agency for International Development in its decision-making process, a matrix which links sets of conditions in developing nations with appropriate types of educational development was produced. Key issues in the creation and use of typologies are discussed and standards for evaluating typologies are identified. Four typological research studies--Beeby (evolutionary), Harbison and Myers (neo-evolutionary), Adams and Farrell (structural differentiation), and McGinn and Snodgrass (structural functional)--are described and assessed. How to build upon and extend these earlier works is discussed. The new framework presented has three major components: the normative or presentation of ranked goals; the analytical or criteria for choice; and the contextual or local-specific characteristics. How each of these components can be loaded with data from appropriate sources is discussed. The concluding section discusses implications of the framework for policy and application. (RM)

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CHOOSING HUMAN RESOURCE INTERVENTIONS: A TYPOLOGY LINKING COUNTRY CONDITIONS AND EDUCATIONAL DEVELOPMENT STRATEGIES

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Draft Report for Discussion

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I.0 INTRODUCTION

1.0.1 Rationale

This paper is the result of a 13-day contract, of which seven days were spent in Washington, D. C., conducting interviews and collecting data. As such, it should be viewed as no more than a draft report for discussion produced under extreme time pressure.

The scope of the work, as specified by USAID, is as follows:

> To inform A.I.D. decision making, develop an analytical framework for establishing type and level of investment in selected areas of human resource interventions, as specified by the Bureau of Science and Technology's Human Resources Division, with sets of country conditions. Analysis of documentation--e.g., macro and micro, country data, CDSS reports, etc.--from A.I.D. and other sources will be necessary. No travel, other than to Washington, will be required.

There are several rationales for this ambitious (one might justifiably say overly ambitious) undertaking. AID policymakers are presently attempting to choose and target educational interventions on a demonstrably more rational and systematic basis. It is expected that this paper along with AID HRD policy and strategy papers now nearing completion will enable those responsible for choosing HRD contributions to overall AID country assistance strategies to be more critically active and less reactive.

It is also expected that this work and related efforts will provide AID personnel with increased insight and opportunities to develop more effective, well chosen, and sharply

targeted HRD efforts in support of larger economic and social development goals.

At the same time, as a targeting exercise, it is also hoped that this work will enable host countries and other donors to more clearly comprehend how AID views its role and priorities in HRD policy and practice.

Lastly, I should note that my personal reasons for accepting this task are to support AID's ongoing attempts to do a better job in development assistance during difficult times. As a past critic of what might be viewed as AID's largely ad hoc efforts in years past, one must applaud and respond to opportunities to help make HRD efforts a sharper tool in efforts to secure greater efficiency and equity in national development ~~efforts.~~ Whether analytical frameworks and social science knowledge will actually serve this purpose remains to be seen. It is, however, work worth the attempt.

1.0.2 Objectives

While these rationales are broad and varied, the objectives of the work are sharply focused and can be presented as follows:

- To present an "analytic framework," typology, matrix--the terms will be used inter changeably--that links sets of country conditions with appropriate types of HRD interventions for various levels and sectors of educational and related socio-economic systems.

- To indicate how such a task can build upon and extend earlier typology work in this regard.
- To suggest/demonstrate how such a matrix can be used in choosing appropriate HRD interventions in specific developing countries.

While only a start can be made here in meeting these objectives, it is hoped that this task will become an ongoing research undertaking that will contribute to both the theory and practice of development work.

1.0.3 Organization

Organization of the paper follows in large part from these objectives. A brief introduction to typology provides standards to assess earlier efforts as well as the present work.

Representative examples of typology in development studies are presented to illustrate a variety of assumptions concerning educational and social change conditions and processes--i.e., evolutionary, neo-evolutionary, structural differentiation, and structural functional.

From these typology efforts as well as recent critiques of educational macro-planning, three major problem areas limiting the use of typology are identified and discussed. Suggestions as to how these problems might be addressed in a new analytical framework are presented and a typology to address AID HRD goals is elaborated. The paper concludes with a brief examination of how existing AID HRD programs fit the matrix, along with suggestions for further research and modification by interested parties.

2.0 A WORD ON TYPOLOGY

As this exercise calls for the creation of an analytical framework, or typology, it may be useful to briefly examine how typology has been a valuable analytical tool in the natural and social sciences and something of its potential, albeit restricted, for policy, strategy, and practice in development education. In this section, standards for evaluating typologies will be identified and presented along with qualifications on their use. These standards will then be used in Section 3.0 to assess earlier efforts to typologize development stages and HRD strategies.

2.0.1 Utility

If there is nothing more practical than a "good" theory in development work, then taxonomy as proto-theory must come to be viewed as a legitimate effort in attempts to make this work more rational and theoretically grounded. Clearly, development efforts to date have only rarely been guided by theory, or systematic causal explanation. If this situation is to be addressed, we will have to pay closer attention to typological classification and the advantages and disadvantages of such methodology in qualitative analysis, in generalization, and in theory construction and testing.

As a specific instance of the general logic of classification, any typological procedure requires that each and every member of a population chosen for study--such as types of developing

countries, or types of HRD strategy--may be classified in only one of the major types or categories delineated. The overall typology must be comprehensive and each category must be mutually exclusive (Tiryakian, 1979).

The dimensions which are differentiated into types must be clearly and explicitly stated--i.e., what indicators have been used and why? Dimensions chosen must be of central importance for the research task at hand and have obvious systemic import (Ben-Barauch, 1974).

Additional methodological criteria for a "good" typological classification would include the criterion of fruitfulness, i.e., the typology may have heuristic significance in facilitating understanding of relations between types, and change of types under certain conditions. The criterion parsimony i.e., the fewest meaningful or significant major types possible to cover the largest number of observations, or phenomena, is also essential.

As Tiryakian (1979) has observed, the methodological functions and significance of typological classification are basically twofold: codification and prediction.

> ...A typology goes beyond sheer description by simplifying the ordering of the elements of a population, and the known relevant traits of that population, into distinct groupings; in this capacity a typological classification creates order out of the potential chaos of discrete, discontinuous, or heterogeneous observations. But in so codifying phenomena, it also permits the observer to seek and predict relationships between phenomena that do not seem to be connected in any obvious way. This is because a good typology is not a collection of undifferentiated entities but is composed of a cluster of traits which do in reality "hang together." (Tiryakian, p. 178)

Typology is a valuable method to type phenomena and suggest causal relations. No matter how elegant and sophisticated it may be, typology must never be viewed as an end in itself but, rather, as a link in efforts to achieve a more scientific understanding of natural or social phenomena (Lazarsfeld, 1967).

2.0.2 Caveats

A word of caution concerning the limitations of typology is also very much in order. As noted, typology at its best can provide a theoretical model of, for example, social change by specifying conditions under which change from one socio-economic stage to another occurs. Badly done, typology can deform reality and serve teleologial or ideological ends. Typology in U. S. social sciences has been criticized in this regard as essentially conservative, as the undemocratic assignment of individuals into fixed groups, to a predetermined social status. From the individualistic-egalitarian outlook, typology serves the interests of hierarchy and is never able to eliminate the problem of how to account for observable variations and gradations. But if the typologist may be overly concerned with the central tendency of a population that he may disregard dispersion in time and space, so also may the anti-typologist run the risk of being so concerned with individual or type deviations that he may lose sight of the central tendency that gives the group its mean or aggregate characteristic.

Typology is also criticized as the creation of artificial categories that have no counterpart in the empirical world. The question of whether types are "real" is best left to the philosophers. For our purposes, types might be best viewed as central tendencies of a population that give the group its meaning or aggregate characteristic.

> ...What may be (concluded) here is that for purposes of scientific research, types treated as central tendencies are no less necessary than variations from the type. Sophisticated users of typologies have fully realized that quantitative differences between individuals assigned to the same category may be, for another part of the investigation, as significant as qualitative differences between the categories themselves. In other words, differences in degree are as essential to a good typology as differences in kind. If this caveat is observed, and if one also remembers that, in our everyday life, we experience nature as a continuum (Natura non facit saltus), the social scientist may put typological classification to fruitful use and bypass the ideological issues (Tiryakian, p. 181).

3.0 EARLIER ATTEMPTS TO TYPOLOGIZE DEVELOPMENT STAGES AND HRD STRATEGIES

With the foregoing review and identification of key issues in the creation and use of typologies, we may now proceed to examine a number of earlier typology-building efforts in different studies. The four examples selected span a period from 1964 to 1979 and offer a fairly accurate picture of an evolving state-of-the-art. Each effort will be briefly described and assessed with an eye to summarizing efforts to date and indicating how the present work might build upon and extend earlier work in fruitful ways.

But lacking theory on education or educational change, we should not expect too much from typological research. We have no macro or even middle-range theory explaining how educational systems evolve, or work, or interact with other social systems. As Adams (1981) has demonstrated, we have no linked sets of propositions which clarify the pedagogical process or how change occurs in the formal and non-formal structures in which education writ large takes place. We even lack a well-defined technical language to help us describe and compare educational systems and efforts to link them to economic and social development efforts (McGinn, 1978).

What we do have, however, is a rather extensive body of historical research and a good deal of largely atheoretical empirical research--and perhaps some rudimentary and beginning insights via heuristic typology-building pertaining to the general topic of educational and social change and the specific question, "under what conditions?" (See, for example, related examples of typological classification of educational phenomena found in Ben-Baruch, 1974; Bowles, 1977; Laska, 1979; Thomas, 1971; among others.)

3.0.1 Beeby

If we turn to the available albeit rather simplistic and crude qualitative and quantitative typologies that have been suggested to describe how and in what directions educational systems do and should change, we should, perhaps, start with Beeby's typology. Beeby, with extensive development education experience in Southeast Asia and the South Pacific, argues that

there are predetermined qualitative stages of educational development that all societies must pass through if they are to see "progress" in the educational system. Each stage is placed in a hierarchy and characterized by typical and mutually supportive patterns of teaching style, curriculum, and the like. (See Figure I.)

Where Thomas (1968) proposes a casual sequence between type (and implied stage) of schooling and national development, Beeby (1966) argues that

> there are certain stages of growth through which all school systems must pass; although a system may be helped to speed up its progress, it cannot leapfrog a stage or a major portion of a stage because of its position on the stage of development is determined by two factors, the level of general education of the teachers, and the amount of training they have received. (p. 69)

Beeby also specifies implications of his evolutionary model for planning large-scale change in schools:

> The fate of nationwide reforms in classroom practice leads to the conclusion that only those had a hope of success which were based on the recognition that schools and teachers in the system were not all at the same state of development....It was easy enough to establish almost any practice in pilot schools with able and enthusiastic staffs, but constant adjustments had to be made as it percolated through to teachers who, for one reason or another, were less capable of handling innovations and the ideas embodied in them. (Beeby pp. 87-88)

Assuming the validity of his model, Beeby has presented a three-phase approach to educational reform at the country level:

> (1) Diagnosis...set the school system with some such framework as is provided by the hypothesis of states; (2) Strategy...Ask three major questions: (a) What proportion of the national budget shall be allotted to education? (b) What demand shall the national plan

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FIGURE I

STAGES IN THE GROWTH OF A PRIMARY SCHOOL SYSTEM

(1) Stage	(2) Teachers	(3) Characteristics
1. Dame School	Ill-educated, untrained	Unorganized, relatively meaningless symbols; very narrow subject content–3 R's; very low standards; memorizing all-important.
2. Formalism	Ill-educated, trained	Highly organized; symbols with limited meaning; rigid syllabus; emphasis on 3 R's; rigid methods–"one best way"; one textbook; external examinations; inspection stressed; discipline tight and external; memorizing heavily stressed; emotional life largely ignored.
3. Transition	Better-educated, trained	Roughly same goals as stage 2, but more efficiently achieved; more emphasis on meaning, but it is still rather "thin" and formal; syllabus and textbooks less restrictive, but teachers hesitate to use greater freedom; final leaving examination often restricts experimentation; little in classroom to cater for emotional and creative life of child.
4. Meaning	Well-educated, well-trained	Meaning and understanding stressed; somewhat wider curriculum, variety of content and methods; individual differences catered for; activity methods, problem solving and creativity; internal tests; relaxed and positive discipline; emotional and aesthetic life, as well as intellectual; closer relations with community; better buildings and equipment essential.

Source: Beeby (1966), p. 72.

> make on the educational system? (c) ...how shall these demands be met?; and (3) Tactics ...any attempt to reform...is most likely to succeed if it is part of a nationwide movement for the improvement of social and economic conditions, if it is known to be warmly supported by the ministry of education at all levels, as well as by the teacher's own organizations, if steps have been taken to make the parents understand the changes, and if the teacher can be made to feel himself less isolated in his classroom....The effect common to all these factors is the added sense of security in a changing situation which they give to the teacher (Beeby, pp. 113, 117-118, 127).

3.0.2 Harbison & Myers

Harbison and Myers' typology, presented in Figure II, broadens the concept of education to human resource development and suggests a powerful functional relationship between human resource development and economic growth. Harbison and Myers' broader matrix, presented as Figure III, is developed from 14 social, economic, and educational indicators and is used to suggest appropriate HRD strategies for "typical countries" at four levels of development.

From their typological research, the authors draw a number of tentative conclusions for policy planners:

> 1. There is a high correlation and presumably some causal relation between enrollments in education (and hence investments in education) and a country's level of economic development as expressed by GNP per capita. It is also clear that this correlation is higher in the case of second- and third-level enrollments than in first-level enrollments. It is possible, however, for a country to invest inefficiently in human resource development, to emphasize the wrong kinds of formal education, and to fail effectively to integrate formal education with in-service training.

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FIGURE II

INDICATORS OF HUMAN RESOURCE AND ECONOMIC DEVELOPMENT: ARITHMETIC MEANS BY LEVELS OF HUMAN RESOURCE DEVELOPMENT*
(rounded to nearest digit)

Indicator	Level I 17 countries	Level II 21 countries	Level III 21 countries	Level IV 16 countries
Composite index (second and higher education)	3	21	50	115
GNP per capita, U.S. dollars	$84	$182	$380	$1,100
Per cent active population in agriculture	83	65	52	23
Teachers (first and second levels) per 10,000 population	17	38	53	80
Scientists and engineers per 10,000 population	0.6	3	25	42
Physicians and dentists per 10,000 population	0.5	3	8	15
First-level enrollment ratio (unadjusted)	22	42	62	73
First- and second-level enrollment (adjusted)	20	45	66	89
Second-level enrollment ratio (adjusted)	2.7	12	27	59
Third-level enrollment ratio (unadjusted)	0.15	1.6	5	11
Per cent enrolled in scientific and technical faculties	24	28	26	28
Per cent enrolled in humanities, fine arts, and law faculties	34	39	33	32
Public expenditures on education as per cent of national income	3.7	2.1	3.1	4.2
Per cent in age group 5–14 inclusive	24	24	22	18

* Sources in addition to special UNESCO tabulations: *Basic Facts and Figures, 1961*, UNESCO, Paris, 1962; Norton Ginsburg (ed.), *Atlas of Economic Development*, University of Chicago Press, Chicago, 1961; and Mikoto Usui and E. E. Hagen, *World Income, 1957*, Center for International Studies, M.I.T., November, 1959.

FIGURE III

CORRELATION COEFFICIENTS: INDICATORS OF HUMAN RESOURCE AND ECONOMIC DEVELOPMENT

Indicators	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Composite index		.888	−.814	.770	.579	.491	.656	.810	.905	.620	.079	−.160	.098	−.522
2. GNP per capita, U.S. dollars	.888		−.818	.755	.833	.700	.668	.732	.817	.735	.021	.017	.101	−.515
3. Per cent active population in agriculture	−.814	−.818		−.797	−.806	−.826	−.775	−.846	−.835	−.675	−.043	−.073	−.204	.595
4. Teachers per 10,000 population	.770	.755	−.797		.373	.339	.739	.870	.671	.392	.009	−.074	.142	−.310
5. Engineers and scientists per 10,000 population	.579	.833	−.806	.373		.816	.103	.895	.791	.784	−.303	.043	.462	−.618
6. Physicians and dentists per 10,000 population	.492	.700	−.827	.339	.816		.265	.759	.656	.832	−.210	.098	.722	−.661
7. First-level enrollment ratio	.656	.668	−.775	.739	.103	.265		.966	.485	.155	.297	−.126	−.401	−.210
8. First- and second-level ratio	.810	.732	−.846	.870	.895	.759	.966		.804	.744	.196	−.169	.368	−.564
9. Second-level ratio	.905	.817	−.835	.671	.791	.636	.485	.804		.758	−.005	−.120	.376	−.700
10. Third-level ratio	.620	.735	−.675	.392	.784	.832	.155	.744	.758		−.246	−.131	.734	−.754
11. Per cent in science and technical faculties	.079	.021	−.043	.069	−.303	−.210	.297	.196	.005	−.246		−.234	−.498	.129
12. Per cent in humanities, arts, law	−.160	−.017	−.073	−.074	.043	.098	−.126	−.169	−.120	−.131	−.234		−.215	.180
13. Public expenditure on education (per cent national income)	.098	.101	−.204	.142	.462	.722	−.401	.378	.376	.734	−.498	−.215		−.720
14. Per cent in age group 5–14	−.522	−.515	.595	−.310	−.612	−.660	−.210	−.564	−.670	−.754	.129	.180	−.720	

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2. Thus, the balance in any program of human resource development may be fully as important as the amount of investment in education. This is a crucial point, and is often neglected by purely quantitative measures of educational investment.

3. An initial heavy investment in human resource development is necessary to get a country started on the road to self-sustaining growth. Most of the underdeveloped (Level I) countries, for example, would have had little or no modern development without expatriate high-level manpower. The magnitude of the task of replacing that expatriate manpower with qualified indigenous personnel is tremendous, as is the task of producing the additional numbers of highly skilled and educated persons for future growth. We noted that the highest rates of human resource development are required by countries which hope to advance from an underdeveloped to a partially developed level. The composite index of human resource development rises three and one-half times faster than GNP per capita between these two levels.

4. The magnitude of required investments in human resource development for continued growth is itself a function of the level of a country's economic development. A wealthy country has more to spend on education than a poor one, and its citizens demand and get more of it. In the United States, for example, a high school education is now essential for most jobs, even those in the so-called semiskilled category. Thus the pre-employment educational requirements for critical jobs depend as much upon the available supply of educated persons as upon precise technical standards. The qualifications required in most occupations, therefore, are a function of a country's general level of human resource development. For this reason we have not attempted to pursue the effort made made in some studies to determine the precise educational or training content, measured in X years of education or Y years of on-the-job-experience, for critical occupations.

5. In all countries people think of education as a main avenue to jobs and careers. In the underdeveloped countries, schooling may be looked upon as "an escape route" from the bush to a white-collar job in the government. Thus, the social and political pressures for education are powered by economic motivations. And for this reason, an educational system which fails to prepare persons for available jobs is clearly out of balance and is by any definition inefficient.

6. The proportion of national income devoted to human resource development is likely to rise in all countries that are growing. The social and political pressures for more and better education are strong in all modernizing nations. At the same time the requirements for high-level manpower in ever more complex

> societies are always rising. Universal primary education, once achieved, creates a demand for universal secondary education, and this in turn calls for expansion of higher education of all types, as well as adult education. And with the increase in quantity of education, the need for improvements in its quality becomes imperative.

In the nearly two decades since Harbison and Myers' seminal typology-building efforts first appeared, widespread efforts to wed HRD strategy to economic development efforts have been disappointing, to say the least. The key problems have not been narrowly technical, as the authors pointed out in 1964, but questions of implementation and political will:

> Successful development, in the final analysis, depends not upon finely spun plans or cleverly devised strategies. It can result only from action. It plans alone could guarantee rapid development, then the future for all nations might be very bright indeed. There are good techniques of general planning; it is not very difficult, as we have shown, to formulate a human resource strategy. It is true that statistics are never quite sufficient, but there are always those who are capable of making fairly sound decisions on the basis of what are available. The technical problems in constructing a development plan are capable of solution, and more refined methods are continually becoming available. And, it is becoming easier to get the leaders and their people to think more logically about development. The crucial question is: Will they act energetically?
>
> Inertia, lack of conviction, and political immorality are perhaps the main obstacles to accelerated growth. The world is full of plans which are never implemented and excellent programs which have died because of lack of popular support. Development in practice, as distinct from development of plans, demands that a people and their leaders become energized and committed to attainment of common goals.
>
> A human resource development strategy and a program for general development of which it is a principal part should strive to build consensus and engender enthusiasm of the entire nation. Sophisticated economic models are of little use unless they are consistent with social and political aspirations. Plans are in themselves futile exercises unless leaders become committed to them and the public at large understands and accepts them.

> Architects of development policy as yet have no formulas or equations for energizing the people of a country and for enlisting their enthusiastic participation in a development program. This essential ingredient of growth defies quantification. But the broadening of the capacities of man, the extension of his knowledge, and the upgrading of his skills, while certainly far from providing all the answers, may lead to the best available road which can be taken. Human resource development, then, may make people more receptive to modernization as their contributions to it are enlarged. (Harbison & Myers, p. 254)

3.0.3 Adams & Farrell

Adams and Farrell suggest that if one elaborates on the simple typology of traditional and modern it is possible in a crude way to hypothesize levels of educational differentiation:

(i) Education at a preliterate level of society takes the form of "socialization through the family" and organized relations between the generations to provide economic skills and an introduction to homogeneous social life....

(ii) At a somewhat more advanced stage, part of the socialization process differentiates out of the family to be provided for all adolescent members of the society under the guidance of a specialized adult group. While a practical content constitutes a part of the "curriculum," strong emphasis is also placed on metaphysical and conduct areas. The Bush School of West Africa provides an example of education at this stage.

(iii) However, as the society itself becomes more differentiated and problems of social selection greater, certain families or groups gain increased power or economic advantages over others, and formalized education ceases to be the prerogative of all societal members. Education can lay claim to a long history of being an institution tied only to those relatively small groups who wielded political, economic, or religious power.

(iv) At yet a more advanced stage the relation between education and social structure becomes decidedly complicated. Industrialization and ever increasing societal differentiation as measured by division of labour and role specialization become outstanding characteristics of the society. Educationists claim

> that education plays no small role in promoting industrialization since the crystallization and developing autonomy of the institution fosters increasingly less biased communication of knowledge, skills, and ideas among the leadership of the society. This stage brings new burdens on schooling in terms of mass instruction, occupational recruitment and social selection.
>
> It has been suggested that one way to look at the development of educational systems historically is in terms of the concept, differentiation. Four stages of development in educational differentiation have been hypothesized, ranging from the undifferentiated conduct of educational activities within the family nexus in very simple societies, to the development of the complex of specialized roles and institutions which characterize present-day national school systems. The developments in the more general process of social differentiation which give rise to or accompany each "stage" of educational differentiation have been briefly sketched.
>
> One of the major difficulties with this typology--a difficulty shared by all typologies which attempt to condense the history of man into a few stages--is that it is much too gross for analysis of contemporary national societies. Its utility is explicative and heuristic. Almost all of the current world population lives in societies whose educational systems can be placed in stages (iii) or (iv). What is needed, then, is a typology or measure which permits more refined classification of contemporary national educational systems according to the degree or level of their educational differentiation.
>
> It might be thought that the most direct way to construct such a measure would be simply to count the number of separate specialized educational entities, and rank the systems according to the number they possess at a particular point in time. At least one author has referred to such a count as the "ideal indicator of differentiation." Such an approach to measurement runs into serious problems, however, for the number of possible elements is simply too great. What is needed, then, is a measurement technique which permits the use of a sample of possible elements which can be tested against each national system. (Adams & Farrell, pp. 255-256)

Using scalogram analysis, the authors produce a matrix that relates levels of development with educational differentiation, as presented in Figure IV.

FIGURE IV

SCALOGRAM OF EDUCATIONAL DIFFERENTIATION, C.R. = 0·95, C.S. = 0·79

Scalogram of Educational Differentiation C.R. = 0·95 C.S. = 0·79	Ministry, etc.	Inspectorate	Curriculum agency	Secondary vocational school	Secondary industrial school	University	Pedagog. trng. secondary teachers	Secondary agricultural school	Pre-primary school	Special education class	Special education school	Research inst. phys-bio. sci.	Research inst. soc. sci.	Research inst. agriculture	Univ. faculties bio., chem., phys.	Research inst. economics	Spec. secondary indust. school	Univ. faculties soc. or anth.
1. Nepal	X	X	X	O	O	X	O	O	O	O	O	O	O	O	O	O	O	O
2. Laos	X	X	X	X	O	O	O	O	X	O	O	O	O	O	O	O	O	O
3. Cambodia	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	X	O
3. Burma	X	X	X	X	X	X	X	X	O	O	O	O	X	O	O	X	O	O
4. Mongolian People's Republic	X	O	O	X	X	X	X	X	X	O	O	O	O	X	X	X	X	O
4. Afghanistan	X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	O
5. Malaya	X	X	X	X	X	X	X	O	X	X	X	O	O	O	O	O	O	O
5. Ceylon	X	X	X	X	X	X	X	X	O	X	X	O	O	O	O	O	O	O
5. Thailand	X	X	X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O
6. S. Korea	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X	O	O
7. Philippines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	O	O
8. Pakistan	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	O	O	O
9. N. Korea	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	X	X	O
9. Indonesia	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	X	O
9. China (Mainland)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O
10. India	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10. China (Taiwan)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X
10. Japan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

But how useful is this analytical tool for educational policy and planning? The authors suggest that its greatest value will be in sequencing and measuring educational change:

> Beyond its utility for building theory, the concept, differentiation, may be of relevance to educational planning. If differentiation is a principal means by which systems adapt to environment changes, then it is certainly a dimension which planning out to take into account. Understanding, however, just what the specific implications of this general statement might be, in relation to particular planning decisions, must await investigation along at least two lines.
>
> (i) Cross-sectional and time-lag correlational studies, and historical case studies, may help to identify the "causes" and consequences of educational differentiation. Correlational studies can assist in isolating the contrasting characteristics of societies with highly differentiated and less differentiated educational systems. Case studies can pinpoint the particular events leading to and following the establishment of various educational entitites.
>
> (ii) Studies need to be conducted to determine the extent to which educational differentiation is a sequential or evolutionary process. In the first section of this paper several historical "stages" of educational differentiation are hypothesized. Referring to contemporary national societies, S. N. Eisenstadt has suggested that differentiation in the wider social system may be a staged dimension. From their empirical studies of the differentiation of small communities, the Youngs have concluded that, although there is no lingle universal sequence, there is a tendency for communities to follow roughly the same sequence in acquiring structural elements. For example, if a community "skips" an item or stage it is likely within a fairly short time to acquire it; if a community acquires an "advanced" item, it is likely fairly quickly either to abandon it or to acquire the intervening items. It seems reasonable to propose, then that the differentiation of educational systems, though not a strictly unilineal process, will follow an approximately similar sequence in all societies. Two approaches may be helpful in ascertaining the validity of this proposition. First, it will be useful to date the acquisition of educational elements for a variety of societies. It can then be determined if there

> is a sequence of item acquisition which is generally followed (and if this sequence, assuming it exists, is approximated by the order of items on a scale of educational differentiation). Second, a picture of short-range changes can be built by developing scales of educational differentiation at several points in time, perhaps a decade apart, and comparing both nation and item rankings. (Adams & Farrell, p. 258)

3.0.4 McGinn & Snodgrass

With the appearance of McGinn and Snodgrass' multi-dimensional typology in 1979 (see Figure V), we have for the first time in the educational policy and planning literature an attempt to suggest appropriate educational development strategy on the basis of national economic type and socio-economic policy orientation. This provocative typology builds upon McGinn's earlier assessment (1978) of types of research needed in educational planning. Both studies were produced at the Harvard Center for Studies in Education and Development under contract to AID and focus on AID concerns.

The typology, presented below along with the related Figure VI, is a distinct step forward when compared with earlier attempts to use typology in educational study. It meets the standards for typological research presented in Section 2.0 in a more satisfactory way and is clearly more fruitful or suggestive. Given the importance of this work for the task at hand, it will be useful after a brief description to identify the typology's advantages and disadvantages. This will help in summarizing some major continuing problems and shortcoming in

FIGURE V

Emphasis on:		Priority given to: Production	Distribution
Export Promotion	Raw materials extraction	Type I	Type II
Export Promotion	Agriculture and intermediate processing	Type III	Type IV
Import Substitution		Type V	Type VI

FIGURE VI

Examples of the Educational Concomitants of Various Types of the Economic Development Strategies

	Strategies					
	I	II	III	IV	V	VI
Illustrative Country	Liberia	Venezuela	South Korea 1964	Cuba	Brazil 1970	Tanzania 1975
What proportion of population educated?	Low	High	All to basic level	All to basic level	Low	All receive some education
Types of education most emphasized	Lawyers "educated men," service occupations	General humanities, business	Citizenship, basic social skills	Vocational education, political socialization	Engineering, science	Public administration
Supply of graduates to supply of jobs	Need to import skilled Technicians	General oversupply	Oversupply of high level manpower	In principle not a problem	Undersupply of high level manpower	Dependence on expatriates to fill technical positions
Role of planning	None	Descriptive statistics	Control over private sector	Command planning	University enrollments expanded to match manpower demand	Limited to replacement of expatriates

relevant typological work to date and in suggesting how a new effort might, via some basic guidelines, move beyond earlier work.

In Figures V and VI above, McGinn and Snodgrass make a valuable start at developing a more sophisticated way of relating educational planning to development strategies. Six different development strategy types are defined, based on the sectoral emphasis (raw materials extraction; agricultural and intermediate processing; important substitution) and the relative priorities accorded to production and distribution. Liberia, Venezuela, South Korea, Cuba, Brazil and Tanzania are briefly discussed as real-world approximations in the six ideal types of development strategy. Some implications of the strategies for the design of congruent educational systems are outlines and the limits of typological research are underscored.

Following a review of factors both external and internal to countries that make it difficult to plan education in accordance with broad strategies of economic development, the authors note that the intent of their analysis is not so much to discourage, as to increase the modesty of the planner:

> We do not find it easy to classify development strategies for the purpose of drawing out educational implications. Perhaps the two major complicating factors are: (1) the wide variation among countries in terms of initial conditions and (2) the fact that real-world policy sets are always mixed, drawing elements from more than one strategic approach. To make the problem manageable, we must talk in terms of a few pure types of both initial conditions and development strategies, even though the real world is full of overlapping and inbetween cases. (p. 5)

The value of this paper in specifying how education should be rationally planned to respond to the needs of the economy is, however, gained through the use of "ideal types." This is the categorization of development strategies not as models of reality nor as representatives of any given country at a given time, but as conceptual categories. While conceptual categories are demonstrably useful to sensitize planners and policymakers to relationships and strategy choice implications, they tell us nothing about actual system operation or change potentials, or of the conflicting agendas, and problems, of major stake holders in the educational system or of its relations with other sectors.

Another strength of the paper--i.e., the identification of national priorities for either production or distribution, creates potential problems in choosing appropriate educational responses. The priority may be more of an ideological strategy chosen to fit the supposed national development strategy and might well be unacceptable to national elites or to other groups pursuing different objectives.

While the paper was done under contract for AID, no mention or reference to AID priorities are made. By limiting policy goals to nations and describing them as broadly "production" or "distribution," two possible choices are identified and typology is facilitated. The donor agency, however, if any, would, in this scheme, play only a reactive role, a situation that would be unacceptable to most international development agencies--and rightly so.

In sum, the typological research of McGinn and Snodgrass, along with the other examples cited, all share in varying degrees a number of problems inherent in typology research and indeed in a good deal of the work done in the macro-planning of education as well (Wyndham, 1975).

Both, for example operate at a very aggregate level far from the political arena of conflicting interests within and across sectors. Both by necessity omit essential parameters and discuss educational objectives and methods in highly abstract terms. Psacharopoulos, in a defense of macro-planning (1975), argues that planning methodology might minimize if not overcome these problems if greater emphasis were placed on at least three interrelated dimensions: the specific country conditions in which planning will be applied, the type and level of education to be planned, and the weight that all policy makers involved put on different objectives.

4.0 AN ANALYTICAL FRAMEWORK FOR AID EDUCATIONAL INTERVENTION

How then, drawing upon research efforts and critiques to date, might we specify guidelines and suggest a juxtaposition of elements, or matrix, that will facilitate educational interventions? This section addresses this need and proposes a framework for discussion and further elaboration or modification.

4.0.1 Guidelines for a USAID HRD Matrix

Guidelines for a new typology should at a minimum address the expectations of those policymakers and aid practitioners who would use such a tool. While these expectations are not presently well-known, they should become apparent with the meeting on September 21.

The framework should meet the standards of social science research yet be suitable focused to avoid overly general assumptions and ensuing lack of operational utility. This need for specificity can perhaps best be met, or at least addressed, with the introduction of normative criteria, that is to say, by the introduction into the matrix of both specific policy objectives, and a suggested range of strategic options. This could have been done here using AID policy and strategy position papers for human resource development. Lacking these, I will use the three overarching AID/HRD goals of basic education, education and work, and indigenous institution-building in this rank ordering, and leave a refinement of the normative dimensions to subsequent modification.

How might an analytic framework draw upon the development literature to target educational interventions to national and sectoral targets where they will promise the greatest return in supporting larger social and economic development goals? Here state-of-the-art knowledge concerning appropriate thresholds for the content, and/or mix, of educational interventions within the three priority choices will be introduced as a "theoretical" or analytical dimension where state-of-the-art generalizations

with causal implications could be selected and used to more rationally target norm-grounded development efforts into what must be assessed as more or less promising contextual settings. These categories are, of course, only rough approximations. Country conditions vary too much and statistics supporting indicators are too unreliable to state cutoff/transition points with any degree of precision. But rough approximations that they may be, the use of even approximate thresholds allow greater flexibility and a less static picture of developing countries as aid targets. With a concerted effort to sharpen the normative, theoretical/analytical, and contextual dimensions, AID over time might well choose educational interventions more rationally and attain its policy objectives with greater economy and impact. This approach would also hold no little promise to support current efforts to build and use a knowledge base for development activities, an effort already well underway in the World Bank and other leading international development agencies.

4.0.2 Elements of a New Framework

Thus, the framework presented below as Figure VII, has three major components: the normative or presentation of ranked goals; the analytical, or criteria for choice; and the contextual or location-specific characteristics. With the foregoing rationale for the selection and juxtaposition of categories in place, it is now necessary to discuss how each component of the framework can be loaded with data from appropriate sources--i.e., policy literature, research findings, country conditions.

FIGURE VII

MULTIDIMENSIONAL FRAMEWORK TO INFORM POLICY AND PROGRAMMATIC HRD DECISIONS

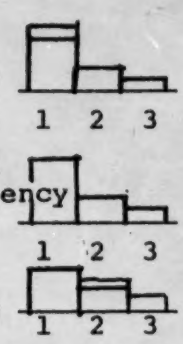
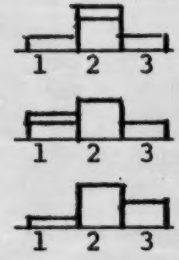
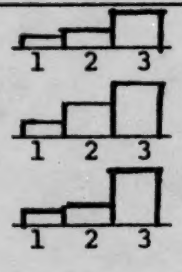
A Normative (Key problem areas. Source: policy statements; Donor and/or host)	B Analytical (Knowledge re. educational/ preconditions threshold. Source: Development, research theory & practice)	C Contextual (Country condition indicators. Source: CDSS, sector surveys, et al)	D Investment Implications (Type and level. Source: Host and donor agendas, other donors, etc.)	Suggestive Profiles
1. Education and Basic Development Needs	Educational levels required--preconditions and thresholds	1. Educational need highest (Nepal, Mali, Upper Volta, Yemen) 2. Educational need moderate (Zaire) 3. Educational need lowest (Sri Lanka)	1. Basic Education: formal system expansion 2. Basic Education: formal system efficiency plus NFE 3. Basic Education: NFE plus training	
2. Education and Work	Educational levels required--preconditions and thresholds	1. Educational need highest (Nigeria) 2. Educational need moderate (Thailand) 3. Educational need lowest (Malaysia)	1. Formal technical secondary 2. Formal and NFE 3. Above, plus entrepreneur training	

FIGURE VII (continued)

A Normative	B Analytical	C Contextual	D Investment Implications	Suggested Profiles
3. Education and Strengthening of Indigenous Institutions	Educational levels required--pre-conditions and thresholds	1. Educational need highest (Perú) 2. Educational need moderate (Indonesia) 3. Educational need lowest (Korea)	1. Participant training 2. PT & regional institutions 3. Regional and national institutions	

As noted, AID basic education policy and policy priorities can only be discussed in a preliminary way on the basis of an early draft for a major policy paper now nearing completion. This will serve nevertheless to define terms and identify policy priorities.

Basic education is the generic term for the means--either informal or out-of-school non-formal education--by which individuals acquire the skills needed to function effectively in a particular society. Numerous studies have shown that the larger the proportion of the population that lack basic education, the more difficult it is to successfully implement the investment plans, policy reforms, and specialized training programs needed to sustain social development and economic growth.

Training in contrast refers to the acquisition of task- or role-specific information and skills required for employment, or work, by "trainees" who have acquired basic education.

The improvement of middle- and higher-level managerial, technical and scientific capacities in various indigenous development institutions also requires an educational priority on training, especially at the tertiary level in universities, non-formal programs, or in participant training.

While AID's ranking of priorities is clear, all three areas of educational goals are interrelated and indicate the need to address tertiary-level training only after basic and secondary level training are in place and producing a flow of graduates with the requisite levels of preparation and motivation.

A serious problem in past assistance efforts has been the absence of threshold evidence or state-of-the-art understanding in fitting educational development priorities to country conditions. (Kronholz , 1982) All too frequently, assistance has been targeted to training in the more prestigous tertiary level before basic education and secondary-level training has been adequately developed.

With the introduction of an "analytical" column, B, current development knowledge may be presented as a rationale for and a guide to targeting. For example, evidence suggests that basic education should be a top priority in countries with less than 60 percent of the age cohort enrolled in primary school. Colclough's review of the evidence (1980) links primary schooling and economic development, presents strong support for AID's basic education priority, and establishes a six years of schooling threshold for effective development efforts in economic growth, fertility control, improvements in agriculture (Lockheed, 1980), in fertility control, in health, nutrition, literacy, and communications and the strengthening of national culture.

The problem of relations between education and work with implications for a sequencing of secondary-level training has received considerable attention in the educational planning literature. Bowman's overview of education and economic growth in King (1980) presents a number of useful generalizations about criteria in the public provision of opportunities to acquire vocational skills. Two broad questions are addressed: (1) how do we determine what skills are needed to further economic development; and (2) what are the most effective ways to develop these skills?

Bowman notes that manpower planning has been seriously flawed by "a high level of aggregation, by an attempt to encompass virtually everything...and by a failure to consider in anyway the implication of their view of human beings as skill packages put rigidly in place." (p. 41) She might also mark the seeming lack of attention paid by manpower planners to the optimum type and sequencing of technical education programs given the need for such education to support economic systems at demonstrably different stages and experiencing varying rates of growth. Level 2 of Column B would begin to assemble what we know in this regard both to present a rationale for AID's second educational priority and to set a threshold to facilitate targeting into Column C.

As to appropriate threshold knowledge for B.3, Psacharopoulos (1980) and others have presented economic and social criteria for choice in higher education. As the lowest priority area, third-level training is difficult to include in the framework. AID's goals for this area, as in education and work, are under revision and once set, it should be possible to identify appropriate threshold generalizations and fit strategy options to country need stages.

In Column C, countries are ranked by comparing country conditions to the threshold levels identified in Column B. This will at best be an approximation of type depending in large part on threshold levels chosen and the mix of country condition indicators.

Countries with the highest need for basic development education will be those countries--such as Nepal, Mali, Upper

Volta that score lowest on a combination of social and economic indicators such as enrollment ratios, health, literacy, infant mortality, and the like. Countries identified in the framework are included for illustrative purposes and may or may not be defensible choices depending on indicators selected.

The choice of educational content, locus, and level of educational aid programs depend on a wide range of factors--i.e., resources, host-country expectations, other donors, related socio-economic development projects in place or planned, and the like. The choices made in Column D are accordingly suggestive of how choices must be made with respect to how country conditions vary vis-a-vis thresholds and goals for basic, technical, or higher education.

Given the pressures influencing development aid choices, it is unrealistic to expect a quantum leap towards scientific planning and management in AID. While basic education may be a rational and logical, as well as normative, choice for the most underdeveloped countries, all three educational priority areas, assistance to all three problem areas may be in operation at one time. But as the matrix suggests, if least-developed countries are receiving most assistance to higher education or to technical education, then an explanation defending that choice would be in order.

One way of indicating the need for flexibility in choice and financing of educational aid is included in the country profiles in Column D. Relative investment in AID's three educational priorities (Column A) is plotted for each stage of

country need. This type of profile could be included in AID program reporting and deviations from policy and strategy guidelines would require explanation.

4.0.3 Implications for Policy and Application

Typology as the selection and juxtaposition of types has a contribution to make in selecting educational strategies appropriate for different development contexts. But if the efforts to this end reviewed here tell us anything, it is that the contribution will be largely of a heuristic, or insight-generating nature. While attempting to gain greater insight into appropriate education interventions via typological research, AID would be well-advised to complement this macro-research thrust with a new emphasis on micro, or case-study and evaluation research at the empirical operational level. Both macro and micro research efforts would address the question, "Under what conditions have educational development efforts been most successful in supporting social and economic development goals?" Typology research would then be viewed as but one research tool among many in an ongoing attempt to draw upon experience and more rationally and efficiently target development assistance through the creation and use of a knowledge/evidence base.

While the use of typology and related macro-models may do more to promote intellectual than practical payoffs, this is not to say that they are without value in development planning. For as Psacharopoulos (1975) persuasively argues,

> The critique and further development of macro-models are not useless activities. For even if never implemented as such, they serve two important functions. Firstly, they contribute to an understanding of the relationship between education and other social parameters which would go undetected if planning only took place according to inertia or politics. This is the positive function of these models. Secondly, these models serve a normative function by making those responsible for educational change choices (like administrators and politicians) aware that something they did not think of before is at least relevant to the decision they are about to take. (p. 216)

Admittedly these functions, while valuable and useful, do not specifically address the utility of the framework. If we have learned anything from the attempted use of analytical frameworks and macro-models during the past two decades, it is that they must not be viewed as rigid, if rational, targeting mechanisms for development assistance. This would not be possible, or desireable. As may be seen in Figure VII, countries can be typed along one or more dimensions. But reality is complex, data is misleading, and development assistance is more art than science.

FIGURE VII

Progress Toward Universal Primary Education, 1980

Adjusted Gross Enrolment Ratio (%) for Primary Education, 1980							
Below 50%	50% - 59%	60% - 69%	70% - 79%	80% - 89%	90% - 94%	95% - 99%	100% and above
AFRICA Burundi Chad Ethiopia Gambia Guinea Mali Mauritania Niger Senegal Sierra Leone Upper Volta	Malawi Somalia Sudan	Benin Liberia Uganda	C.A.R. Egypt Ghana Ivory Coast Morocco Rwanda	Equatorial Guinea Nigeria	Botswana Zaire	Algeria Kenya South Africa Zambia	Angola, Cameroon Congo Gabon, Guinea Bissau Lesotho, Libya Madagascar Mauritius Mozambique Swaziland Tanzania Togo, Tunisia
LATIN AMERICA		Guatemala Haiti		El Salvador Honduras Nicaragua	Bolivia Brazil	Jamaica Trinidad & Tobago	Argentina, Barbados Chile, Colombia Costa Rica, Cuba Dominican Republic Ecuador, Guyanna Mexico, Panama Paraguay, Peru Suriname, Uruguay Venezuela
N.E. AND ASIA Afghanistan Bhutan Yemen Arab Rep.	Pakistan	Bangladesh Oman Saudi Arabia	Nepal	Burma India Thailand United Arab Emirates Yemen Dem. Rep.	Malaysia Syria	Indonesia Lao, People's Dem. Rep. Lebanon Philippines Sri Lanka	Bahrain, Cyprus Iran, Iraq, Israel, Jordan Kuwait Qutar Singapore Turkey Vietnam

Reminder: The Gross Enrolment ratio includes many over-age pupils and repeaters and thus substantially overstates the true situation. It also does not reveal what proportion of entering pupils actually complete the primary cycle.

Source: UNESCO, Trends and Projections of Enrolment, 1981, Provisional Assessment.

Table prepared by International Council for Educational Development (ICED).

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